shifted or DS fibres, i.e. fibres with chromatic dispersion which approaches zero within the wavelength band employed for telecommunications, around 1550 nm, as for example defined by the ITU-T Recommendation G653 1993, and for time-division optical multiplexing.

Please replace the paragraph beginning at page 1, line 33, through page 2, line 5, as follows:

In the case of transmission over so-called step-index fibres, or SI fibres, (as for example described in ITU-T Recommendations G650 1993 and G652 1993) and with dispersion compensation, it is useful to have available fairly long pulses (for example lasting from 20 to 60 ps for a transmission frequency of 10 Gbit/s) while it is observed that with shorter-lasting pulses in the SI fibre systems, with high dispersion, phenomena of dispersive wave generation are observed leading, ultimately, to an increase in the error rate of the transmission (BER).

Page 2, please replace the paragraph at lines 8-13, as follows:

The term "chirp" is understood to mean a variation in the frequency of the signal during its amplitude modulation, so that there is a (central) frequency of the signal which is different at the start of the pulse from the (central) frequency of the signal at the end of the pulse.

Page 2, please replace the paragraph at lines 14-18, as follows:

The Patent WO 9616345 describes an apparatus which uses two amplitude modulators controlled by two phase-locked modulating voltages, one having double the frequency of the other, in which the larger is the speed of pulse repetition.

Please replace the paragraph beginning at page 2, line 33, through page 3, line 8, as follows:

The Patent US 5157744 describes a soliton generator which comprises an amplitude modulator with Mach-Zehnder interferometer with a multiple series of distributed electrodes, driven at harmonically correlated frequencies. The Patent states that the process of combining several high-frequency signals into a single signal involves large attenuations and requires amplification, and that the transmission and processing of the final signal, which is a composite of many high-frequency signals, is extremely difficult. Moreover, if the composite signal requires amplification, a very expensive amplifier is required that is able to amplify many very high frequencies uniformly. The invention of US 5157744 is aimed at a soliton generator which avoids these problems.

B6

Page 3, between lines 28 and 29 please insert the following section title:

B7

SUMMARY OF THE INVENTION.

Page 3, please replace the paragraph at lines 29-35, as follows:

According to one aspect of the present invention, it is found that, by applying to a modulator of an optical signal a drive signal consisting of a periodic signal at one frequency, combined with at least one harmonic of the periodic signal, it is possible to generate pulses of an amplitude suitable for pulsed optical communication, of the soliton type or the like.

B8

Page 10, between lines 11 and 12, please insert the following section title:

B9

BRIEF DESCRIPTION OF THE DRAWINGS.

Page 11, between lines 8 and 9, please insert the following section title:

B10

DESCRIPTION OF THE PREFERRED EMBODIMENTS.

Page 11, please replace the paragraph at lines 24-31, as follows:

For the purposes of the present description, the term second harmonic of a signal of given frequency is understood to mean a signal with double the frequency of the given frequency, the fundamental frequency; the terms third harmonic, fourth harmonic, etc. are

B11 cont

understood to mean signals at frequencies respectively triple, quadruple etc. the given fundamental frequency.

Please replace the paragraph beginning at page 11, line 32, through page 12, line 2, as follows:

For the purposes of the present invention, the term frequency of a periodic signal is understood to mean the frequency of the sinusoid, in the case in which the periodic signal is a sinusoidal signal, or else the frequency of the fundamental sinusoid in the Fourier series expansion of the signal, in the case in which it has a non-sinusoidal temporal profile, and the term higher harmonics is understood to mean whole multiple frequencies of the sinusoid or of the fundamental frequency.

Page 12, please replace the paragraph at lines 3-12, as follows:

Hereafter, unless otherwise specified, the terms "sinusoidal signal" and "harmonic of the frequency of the sinusoidal signal" are used to mean that these comprise either signals with sinusoidal time profile and appropriate harmonics or signals with a different time profile, for example with a triangular, square or similar wave, or else with a more complex profile, for example with a $sech^2$ (t) profile, (typical of soliton pulses), and signals at harmonic frequencies of the fundamental frequency of the signals, having the same or a different time profile.

Page 12, please replace the paragraph at lines 16-19, as follows:

Such electrical signals with different frequencies are combined together by means of a combining filter 7 (described hereafter) possibly after amplification by respective amplifiers 8, 9, 10.

Page 14, please replace the paragraph at lines 17-20, as follows:

It is known that the secondary peak, if its value is too high, could be detected as a 1 value in the digital transmission, even if the corresponding main peak has been deleted following the prescribed modulation.

B15

Page 19, please replace the paragraph at lines 20-24, as follows:

In particular, the interfacing units generate respective optical work signals having wave-lengths λ_1, λ_2, λ_3, λ_4, λ_5, λ_6, and so on, included within the useful working band of the amplifiers arranged subsequently in the system, having, in addition, RZ pulsed modulation characteristics.

B16

Page 20, please replace the paragraph at lines 16-21, as follows:

Via the fibre 34 the work signals are sent to a power amplifier 35, which raises their level to a value sufficient to traverse a subsequent stretch of intervening optical fibre ahead of fresh means of amplification retaining at the end a power level which is sufficient to guarantee the required transmissive quality.

B17

Page 24, please replace the paragraph at lines 7-10, as follows:

Preferably, in the presence of a total of 10 between line amplifiers 37 and preamplifier 39, each of the chromatic dispersion compensation units 42 is designed to compensate around 1550 ps/nm.

B18

IN THE CLAIMS

Please amend the below noted claims to read as follows:

35. (Amended) Pulsed transmission system according to Claim 34, wherein said optical signal at said transmission wavelength has, for at least one portion of its propagation path in one of said first and second optical conductor elements, an intensity of a value such as to cause self phase modulation of said optical signal.

B19 cont

42. (Amended) High-speed optical pulse transmitter, comprising:

an optical signal modulator;

an optical pulse modulator, optically linked to said signal modulator;

a generator of a continuous optical signal, optically linked to said signal and pulse modulators;

a signal modulator driver for feeding said signal modulator with an electrical signal bearing a coded information with a first frequency; and

a pulse modulator driver comprising:

a circuit for generating a first periodic electrical signal at said first frequency;

a circuit for generating a second periodic electrical signal at a second frequency which is a harmonic of said first frequency;

a first and a second amplifier for amplifying said first and second periodic electrical signal; and

a combining element for combining said amplified first and second periodic electrical signals, and for feeding said pulse modulator with said combined signal;

wherein said signal modulator emits a sequence of substantially chirp-free optical pulses at the transmission wavelength having a duration T_{FWHM}, the ratio T_{bit}/T_{FWHM}, between the inverse T_{bit} of said preset frequency and said duration T_{FWHM} of the pulses, being higher than 200/75 and lower than 10.

52. (Amended) Method of high-speed optical transmission, comprising the steps of:

generating an optical signal;

modulating said optical signal with a periodic drive signal;

modulating said optical signal with an information bearing signal at a preset frequency;